

REMARKS/ARGUMENTS

Claim Rejections

The Examiner has rejected Claims 1 to 3, 6 to 13, and 15 to 17 under 35 U.S.C. 103(a) as being unpatentable over Betso (US 5,576,374) in view of Scheuring (US 6,419,864) and Sargent (US 5,401,154).

Betso discloses a thermoplastic polymer composition, specifically a thermoplastic polyolefin (TPO), comprising a thermoplastic polymer, at least one substantially linear ethylene polymer and/or a linear ethylene polymer, and a filler, methods to prepare said compositions, and methods to mold articles therefrom.

Scheuring discloses a method to prepare a filled fiber reinforced thermoplastic, a TPO is exemplified, in a single manufacturing process utilizing a twin screw extruder wherein a polymer, blend polymer, and other additives are fed in a first feed zone, a filler is fed in a second feed zone, and continuous fiber rovings fed in a third feed zone wherein the filled fiber reinforced thermoplastic is then comminuted to pellets.

Sargent discloses an apparatus for making a fiber reinforced thermoplastic material (polypropylene, nylon, PPO, and PPS are only thermoplastics mentioned, i.e., TPO resins ARE NOT mentioned) and making parts therefrom wherein the apparatus has a first material inlet for the thermoplastic resin, a second material inlet for the fiber reinforcing material and optionally a third material inlet for a second fiber reinforcing material (Claims 1 and 10 and Figure 1).

Applicant claims a method of making a fiber-reinforced thermoplastic article in a process including the steps of extruding a molten, fiber-reinforced thermoplastic polymer composition comprising a thermoplastic polymer, a masterbatch comprising an elastomer, and continuous fiber and forming a fabricated article therefrom. The objective of the present invention is to provide a single process which combines melt blending a thermoplastic polymer, a masterbatch comprising an elastomer, and continuous fiber and fabricating a fiber-reinforced thermoplastic article. Such a process is hitherto unknown. The present invention provides a method of online adjustment of fiber-reinforcement and elastomer levels and is more efficient and cost

effective than previously known multi process approaches used to fabricate fiber-reinforced thermoplastic articles.

The three references the Examiner has cited claim (1) a TPO composition and methods to mold articles therefrom (Betso), (2) a method to make a fiber filled TPO composition (Scheuring), and (3) an apparatus to make a fiber filled thermoplastic (non-TPO) composition and articles therefrom (Sargent).

The inventive feature which distinguishes the present invention over the three cited prior art references is the use of a masterbatch comprising an elastomer. The Examiner may be confused and/or unaware of what a masterbatch is. The Examiner makes reference to masterbatch in the cited prior art at least twice in the office action dated November 14, 2008: (1) page 3, last paragraph-the Examiner cites Betso, column 3, lines 18-27 and (2) page 8 last paragraph to page 9, first paragraph-the Examiner cites Betso column 5, line 66 to column 6, line 1 and column 6, lines 30-33. Upon very careful review, Applicant can find no reference to masterbatch or masterbatch concept in Betso at the locations cited by the Examiner or elsewhere.

Masterbatch is a well known concept to one skilled in the art of plastics compounding technology. A cursory review of the internet (simply by googling “masterbatch”) reveals hundreds of results with the following a sample definitions:

Wictionary.org: A solid product (normally of plastic, rubber, or elastomer) in which pigments or additives are optimally dispersed at high concentration in a carrier material. The carrier material is compatible with the main plastic in which it will be blended during molding, whereby the final plastic product obtains the color or properties from the masterbatch.

Answers.com: A plastic, rubber, or elastomer mixture in which there is a high additives concentration, such as rubber with carbon black, or plastic with color pigment; used to proportion additives accurately into large bulks of plastic, rubber, or elastomer.

However, the masterbatch of the present invention differs from conventional masterbatches. In conventional masterbatches, when an elastomer is used, it is the carrier resin in which additives are dispersed. In the present invention, the elastomer is (one of) the additive(s) dispersed in the carrier resin, in other words the masterbatch comprises an elastomer.

To reiterate, the inventive feature which distinguishes the present invention over the three cited prior art references is the use of a *masterbatch comprising an elastomer*. Betso does not teach or suggest the use of a masterbatch comprising an elastomer to make its claimed TPO composition. Scheuring does not teach or suggest the use of a masterbatch comprising an elastomer in its method to make a fiber filled TPO. Sargent does not teach or suggest the use of, or ability to use therein, a masterbatch comprising an elastomer in its apparatus to make fiber filled (non TPO) thermoplastic composition and article therefrom. Applicant asserts that it is impossible to combine Betso, Scheuring, and/or Sargent to arrive at Applicant's present invention as claimed in independent Claim 1 of a method of making a fiber-reinforced thermoplastic article in a process including the steps of extruding a molten, fiber-reinforced thermoplastic polymer composition comprising a thermoplastic polymer, a masterbatch comprising an elastomer, and continuous fiber and forming a fabricated article therefrom. Therefore, independent Claim 1 and dependent Claims 2, 3, 6 to 13, and 15 to 17 are unobvious and patentable over Betso in view of Scheuring and Sargent.

CONCLUSIONS

In view of the preceding remarks, it is believed that all grounds of rejection have been fully traversed and Applicant's amended Claims 1 and 13 and original Claims 2, 3, 6 to 12, and 15 to 17 are patentable in full. Accordingly, their reconsideration and allowance at the earliest possible convenience is courteously solicited. Furthermore, Applicant believes that Claim 1 as amended is novel and patentable and that withdrawn Claims 4 and 5 also be reconsidered and allowed.

Respectfully submitted,

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